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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/931,922
Filing Date: August 20, 2001
Appellant(s): TAKASAKI, YOSHINORI

John E. Harrity
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed on 10/09/2008 appealing from the Office action mailed on 05/29/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1, 3-7, 9-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Nagata et al. (US 6269083), hereinafter referred to as Nagata.

Regarding claim 1, Nagata discloses a plurality of OAM cell handlers **(fig 1, 1a &1b make up a first OAM cell handler, and 1c & 1d make up a second OAM cell**

handler, where the OAM loopback cell delivering means and recognizing means are equivalent to the OAM cell handlers, and these components are composed within the communication device 1 of fig 1, and the communication device 11 in fig 14)

a plurality of virtual path handlers **(fig 14, 13 and 51 are combined to form a plurality of VPH's and Col1 lines 5-15 indicate that the network and devices are capable of handling virtual paths).**

a plurality of virtual channel handlers **(fig 14, elements 14 and 52 are combined to form a plurality of VCH's, where Col 1 lines 5-15 indicate that the network and devices contained within fig 14 are capable of handling virtual channels).**

trunks **(fig 14, 16 and 53 are combined to form a plurality of trunks, as trunks from the applicants spec are merely the termination points of a connection)**

a control unit **(fig 5, 36, controller)** configured to:

issue an OAM cell send instruction to a first one of the plurality of OAM cell handlers **(Col 12 lines 35-52, where an OAM cell tx request is sent from the controller 36, and this request in the OAM cell delivering means of fig 1a 1, as the components of fig 5 make up this device)**

control said first OAM cell handler to carry out a loopback control test **(Col 12 lines 35-52, where an OAM cell tx request is sent from the controller 36, and this request in the OAM cell delivering means of fig 1a 1, as the components of fig 5 make up this device)** to at least one of the virtual path handlers **(fig 14, the OAM cell**

is sent from the cell delivering means of the device 11, to the VPH's 13 and 51), at least on of said virtual channel handlers **(fig 14, the OAM cell is sent from the cell delivering means of the device 11, to the VCH's 14 and 52),** and at least one of said trunks **(fig 14, the OAM cell is sent from the cell delivering means of the device 11, to the trunk's 16 and 53 where the examiner states that subscribers 16 and 53 of fig 14 are trunks/terminating points, where Col 11 lines 25-27 show that the OAM loopback cell is returned from an endpoint/terminating point, also see (e) of the response to arguments),** which are associated with said first OAM cell handler **(from fig 14, the first oam cell delivering means indicated by the tx of the first oam cell is associated with the subscriber 16 in that a connection between the 2 devices is formed)**, in response to the OAM cell send instruction **(Col 12 lines 51-52, OAM loopback cell is sent in response to the previous tx of the OAM cell tx request)**, and

when said first OAM cell handler sends out an OAM cell in response to said OAM cell send instruction, determine a fault position based on returning or non-returning **(Col 13 lines 46-65, the exchange that has not returned the loopback cell is identified)** of the OAM cell to said first OAM cell handler **(fig 1, 1b and 1d receive the loopback cell after it has been transmitted and looped back).**

Regarding Claim 3. Nagata discloses said OAM handlers, said plurality of virtual path handlers, said plurality of virtual channel handlers, said trunks, and said control unit being contained in an ATM switching apparatus **(fig 5 discloses an ATM**

exchange where all of these components are found. The ATM exchange has the functionality of a switching device as it contains an ATM switch).

Regarding Claim 4, Nagata discloses periodically issuing the OAM cell send instruction to the first OAM cell handler (Col 14 lines 3-24).

Regarding Claim 5, Nagata discloses determine a fault position based on returning or non-returning (Col 13 lines 46-65) of each OAM cell to said first OAM cell handler (Col 16 line 55-Col 17 line 4).

Regarding Claim 6, Nagata discloses an OAM cell transmission control unit that transmits (issues) an OAM cell transmission request (OAM send cell instruction) as disclosed in Col 12 lines 35-52.

Nagata also discloses an OAM cell transmission control unit that controls the OAM cell transmitter to transmit the OAM loopback cell to the path route (Col 6 lines 39-46).

Nagata discloses a controller coupled to the control unit for determining a fault based on the returning of the OAM cell (Col 16 line 62- Col 17 line 20).

Nagata discloses a second OAM loopback cell delivering means (OAM cell handler) being enabled (changed) to deliver a second OAM loopback cell (Col 5 lines 44-50), where transmission of a second cell may be broadly interpreted as a change for the control unit, as opposed to sending a first OAM cell.

Regarding claim 7, Nagata discloses issuing an OAM cell send instruction to a specific one of a first one of the plurality of OAM cell handlers **(Col 12 lines 35-52, where an OAM cell tx request is sent from the controller 36, and this request in**

the OAM cell delivering means of fig 1a 1, as the components of fig 5 make up this device)

carrying out a loopback control test **(Col 12 lines 35-52, where an OAM cell tx request is sent from the controller 36, and this request in the OAM cell delivering means of fig 1a 1, as the components of fig 5 make up this device)** to at least one of the virtual path handlers **(fig 14, the OAM cell is sent from the cell delivering means of the device 11, to the VPH's 13 and 51),** at least on of said virtual channel handlers **(fig 14, the OAM cell is sent from the cell delivering means of the device 11, to the VCH's 14 and 52),** and a trunk **(fig 14, the OAM cell is sent from the cell delivering means of the device 11, to the trunk's 16 and 53, where the examiner states that subscribers 16 and 53 of fig 14 are trunks/terminating points, where Col 11 lines 25-27 show that the OAM loopback cell is returned from an endpoint/terminating point),** which are associated with said first OAM cell handler **(from fig 14, the first oam cell delivering means indicated by the tx of the first oam cell is associated with the subscriber 16 in that a connection between the 2 devices is formed)**, in response to the OAM cell send instruction **(Col 12 lines 51-52, OAM loopback cell is sent in response to the previous tx of the OAM cell tx request)**

sending out an OAM cell in response to said OAM cell send instruction **(Col 12 lines 51-52, OAM loopback cell is sent in response to the previous tx of the OAM cell tx request)**,

determining a fault position based on returning or non-returning **(Col 13 lines 46-65, the exchange that has not returned the loopback cell is identified)** of the OAM cell to said first OAM cell handler **(fig 1, 1b and 1d receive the loopback cell after it has been transmitted and looped back).**

Regarding claim 9, Nagata discloses wherein said carrying out a loop back control test is performed in an ATM switching apparatus **(fig 5 shows the atm device which is a switching apparatus according to the switching function of element 34, and furthermore, the oam loopback test is performed in this device according to fig 6, where element 37 transmits and receives the oam cell for testing).**

Regarding Claim 10, Nagata discloses said OAM handlers, said plurality of virtual path handlers, said plurality of virtual channel handlers, said trunks, and said control unit being contained in an ATM switching apparatus **(fig 5 discloses an ATM exchange where all of these components are found. The ATM exchange has the functionality of a switching device as it contains an ATM switch).**

Regarding Claim 11, Nagata discloses periodically issuing the OAM cell send instruction to the first OAM cell handler (Col 14 lines 3-24).

Regarding claim 12, Nagata discloses carrying out a loopback control test **(Col 12 lines 35-52, where an OAM cell tx request is sent from the controller 36, and this request in the OAM cell delivering means of fig 1a 1, as the components of fig 5 make up this device)** to all of the virtual path handlers **(fig 14, the OAM cell is sent from the cell delivering means of the device 11, to the VPH's 13 and 51),** said virtual channel handlers **(fig 14, the OAM cell is sent from the cell delivering means**

of the device 11, to the VCH's 14 and 52), of said trunks **(fig 14, the OAM cell is sent from the cell delivering means of the device 11, to the trunk's 16 and 53, where the examiner states that subscribers 16 and 53 of fig 14 are trunks/terminating points, where Col 11 lines 25-27 show that the OAM loopback cell is returned from an endpoint/terminating point),** in response to the OAM cell send instruction **(Col 12 lines 51-52, OAM loopback cell is sent in response to the previous tx of the OAM cell tx request)**,

Said sending out comprising:

sending out an OAM cell in response to said OAM cell send instruction **(Col 12 lines 51-52, OAM loopback cell is sent in response to the previous tx of the OAM cell tx request).**

Regarding claim 13, Nagata discloses a plurality of testing devices **(fig 1, 1a &1b make up a first OAM cell handler, and 1c & 1d make up a second OAM cell handler, where the OAM loopback cell delivering means and recognizing means are equivalent to the OAM cell handlers, and these components are composed within the communication device 1 of fig 1, and the communication device 11 in fig 14)**

a plurality of path handlers **(fig 14, 13 and 51 are combined to form a plurality of VPH's and Col1 lines 5-15 indicate that the network and devices are capable of handling virtual paths);**

a plurality of channel handlers **(fig 14, elements 14 and 52 are combined to form a plurality of VCH's, where Col 1 lines 5-15 indicate that the network and devices contained within fig 14 are capable of handling virtual channels)**;

a plurality of trunks **(fig 14, 16 and 53 are combined to form a plurality of trunks, as trunks from the applicants spec are merely the termination points of a connection)**

issue an instruction to a first one of the plurality of testing devices, the instruction indicating that the first testing device is to perform a loopback control test **(Col 12 lines 35-52, where an OAM cell tx request is sent from the controller 36, and this request in the OAM cell delivering means of fig 1a 1, as the components of fig 5 make up this device)**,

wherein the first testing device is configured to: receive the instruction, send test data **(Col 12 lines 35-52, where an OAM cell tx request is sent from the controller 36, and this request in the OAM cell delivering means of fig 1a 1, as the components of fig 5 make up this device)** to at least one of the path handlers **(fig 14, the OAM cell is sent from the cell delivering means of the device 11, to the VPH's 13 and 51)**, channel handlers **(fig 14, the OAM cell is sent from the cell delivering means of the device 11, to the VCH's 14 and 52)** or trunks **(fig 14, the OAM cell is sent from the cell delivering means of the device 11, to the trunk's 16 and 53)** in response to the instruction **(Col 12 lines 51-52, OAM loopback cell is sent in response to the previous tx of the OAM cell tx request)**,

receive back at least some of the test data **(fig 6, element 37B receives test data)**, and

forward results of the loopback control test to the control unit **(fig 6 shows received oam cell data being received and sent to an analyzer),**

wherein the control unit is further configured to:

identify a fault based on the forwarded results **(Col 13 lines 46-65, the exchange that has not returned the loopback cell is identified)**.

Regarding claim 14, Nagata discloses the control unit is configured to periodically issue the instruction to the first testing device (Col 14 lines 3-24).

Regarding Claim 15, Nagata discloses forwarding information to the control unit based on return of the test data to the first testing device (fig 6, 37 and 37b).

Regarding Claim 16, Nagata discloses a controller coupled to the control unit for determining a fault based on the returning of the OAM cell (Col 16 line 62- Col 17 line 20).

Regarding Claim 17, Nagata discloses performing a fault avoidance operation based on the identified fault (Col 25 lines 9-19, maintenance action).

Regarding Claim 18, Nagata discloses the control unit being configured to forward loopback control test initiation instructions to the plurality of the testing devices (Col 12 lines 35-52).

Regarding Claim 19, Nagata discloses the plurality of testing devices may be included in the plurality of path handlers, the plurality of channel handlers or the plurality of trunks (see fig 14).

3. Claim 2, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al. (US 6269083), hereinafter referred to as Nagata in view of Hsing et al. (US 6167025).

Regarding Claim 2, Nagata discloses a switching apparatus connected to an ATM exchange dedicated to route/switch data based on routing information (fee fig 5 and relevant description).

Nagata also discloses detecting the position of a fault (Col 16 line 55-Col 17 line 4).

Nagata does not specifically disclose carrying out a switching operation of a route from at least one of said virtual path handlers to at least one of said trunks for fault avoidance based on the determined fault position.

Hsing discloses carrying out a switching operation of a route from at least one of said virtual path handlers to at least one of said trunks for fault avoidance based on the determined fault position **(Col 4 lines 30-40, note that an ATM switches a route based on the determination that a fault on a node exists).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the ATM exchanges of Nagata, as taught by Hsing, since stated in the title, that such a modification will allow restoring of a connection in an ATM network.

Regarding Claim 8, Nagata discloses a switching apparatus connected to an ATM exchange dedicated to route/switch data based on routing information (fee fig 5 and relevant description).

Nagata also discloses detecting the position of a fault (Col 16 line 55-Col 17 line 4).

Hsing discloses carrying out a switching operation of a route from at least one of said virtual path handlers to at least one of said trunks for fault avoidance based on the determined fault position **(Col 4 lines 30-40, note that an ATM switches a route based on the determination that a fault on a node exists).**

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the ATM exchanges of Nagata, as taught by Hsing, since stated in the title, that such a modification will allow restoring of a connection in an ATM network.

4. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al. (US 6269083), hereinafter referred to as Nagata in view of Hiscock et al. (US 6347073), hereinafter referred to as Hiscock.

Regarding claim 20, Nagata does not disclose the plurality of path handlers, the plurality of channel handlers and the plurality of trunks being contained in a single switching apparatus

Hiscock discloses the plurality of path handlers, the plurality of channel handlers and the plurality of trunks being contained in a single switching apparatus (fig 1, 20, where a combination of switches or devices equivalent to the atm exchanges within

Nagata, are combined within one device known as a packet forwarding device 20, and see Col 3 lines 18-21, where 2 or more switches are combined into one device).

It would have been obvious to one of the ordinary skill in the art at the time of the invention was disclosed to modify the system as disclosed by Nagata, as taught by Hiscock, since stated in the abstract that such a modification will allow redundancy within the device in the event of a failure or fault of some sort.

(10) Response to Argument

a. The appellant argued with respect to the rejection of claims 1, 7, 9, 11, that Nagata does not disclose a plurality of virtual path handlers. The examiner notes that the written description is not read into a claim, and thus the claims are interpreted as broadly as their terms allow. The examiner also notes that no functionality is given to the virtual path handler other than sending loopback data to such a handler. Therefore the examiner points to Nagata, fig 14, elements 13 and 51 as equivalent to a virtual path handler, where elements 13 and 14 are exchanges/handlers (handler is broadly interpreted as a device for handling, such as an exchange which handles receipt and transmission of data) which handles virtual channels or paths according to Col 1 lines 10-13.

b. The appellant argued with respect to the rejection of claim 1, 7, 9, 11, that Nagata does not disclose a plurality of virtual channel handlers. The examiner notes that the written description is not read into a claim, and thus the claims are interpreted as broadly as their terms allow. The examiner also notes that no

functionality is given to the virtual channel handlers other than sending loopback data to such a handler. Therefore the examiner points to Nagata, fig 14 elements 14 and 52 as equivalent to virtual channel handlers, where elements 14 and 52 are exchanges/handlers (handler is broadly interpreted as a device for handling, such as an exchange which handles receipt and transmission of data) which handles virtual channels or paths according to Col 1 lines 10-13.

c. The appellant argued that Nagata teaches away from the examiners interpretation by specifically disclosing that the ATM network is made up of virtual paths or virtual channels (according to page 7 of the appeal brief). The examiner points to the definition of a virtual path, which states that a virtual path contains virtual circuits (where a virtual circuit is synonymous to a virtual channel), therefore when a virtual path is present, so too is a virtual channel/circuit. Furthermore, a channel that connects two points, is equivalent to the path between those two points, thus given the broadest allowable interpretation, a virtual channel and virtual path are not differentiated within the claims (Also, a Virtual Path is a bundle of Virtual Channel links, and all the Virtual Channel links in the bundle have the same endpoints, so that a VC link is equivalent to a VP connection).

d. The appellant argued with respect to the rejection of claim 1, 7, 9, 11, that Nagata does not disclose a plurality of trunks (according to page 7 of the appeal brief). The appellant argues with respect to the definition given within the written description, however the appellant is reminded that the written description is not

read into a claim, and thus the claims are interpreted as broadly as their terms allow. Furthermore, no functionality with respect to the plurality of trunks is given within the claims. Therefore elements 16 and 53 of fig 14, which are termination points for a connection (similar to the applicants disclosure on page 6 lines 20 21 that states that the trunk is a unit for the termination of the VC), are equivalent to trunks.

e. The appellant argued with respect to the rejection of claim 1, 7, 9, 11, that Nagata does not disclose that the maintenance interface controller issues an OAM cell send instruction to a first OAM cell handler and controls the first OAM cell handler to carry out a loopback control test to at least one of the VPHs, at least one of the VCHs and at least one of the trunks associated with the first OAM cell handler. The appellant specifically argues with respect to the claimed limitation that Nagata discloses merely testing a path from one exchange to another exchange and cannot be reasonably construed to disclose or suggest loop back control test to at least one of the VPHs, at least one of the VCHs and at least one of the trunks. The examiner disagrees with the appellants arguments, citing fig 14, which shows within exchange A, the transmission of OAM loopback cells, where these OAM loopback cells are transmitted to VPHs (fig 14, see OAM loopback cells SN=1), to VCHs (fig 14, see SN=2) and to trunks (the examiner states that subscribers 16 and 53 of fig 14 are trunks/terminating points, where Col 11 lines 25-27 show that the OAM loopback cell is returned from an endpoint/terminating point. Furthermore, in light of the appellants

arguments that the claimed trunks are relaying devices according to page 8 of the appeal brief, the examiner points to exchange B of fig 14 as another trunk, where the claims do not define the function of the plurality of trunks, therefore the trunk/exchange B receives loopback test via SN=0).

f. The appellant argued with respect to claim 3, 10 that Nagata does not disclose, contained within a switching apparatus. The examiner disagrees, citing fig 14, which when interpreted as a whole is equivalent to a switching apparatus, where as described above, the switching apparatus contains VPHs, VCHs and trunks.

g. The appellant argued with respect to the rejection of claims 13-17 and 19 that Nagata does not disclose a plurality of virtual path handlers. The examiner notes that the written description is not read into a claim, and thus the claims are interpreted as broadly as their terms allow. The examiner also notes that no functionality is given to the virtual path handler other than sending loopback data to such a handler. Therefore the examiner points to Nagata, fig 14, elements 13 and 51 as equivalent to a virtual path handler, where elements 13 and 14 are exchanges/handlers (handler is broadly interpreted as a device for handling such as an exchange which handles receipt and transmission of data) which handles virtual channels or paths according to Col 1 lines 10-13.

h. The appellant argued with respect to the rejection of claims 13-17 and 19, that Nagata does not disclose a plurality of virtual channel handlers. The examiner notes that the written description is not read into a claim, and thus the

claims are interpreted as broadly as their terms allow. The examiner also notes that no functionality is given to the virtual channel handlers other than sending loopback data to such a handler. Therefore the examiner points to Nagata, fig 14 elements 14 and 52 as equivalent to virtual channel handlers, where elements 14 and 52 are exchanges/handlers (handler is broadly interpreted as a device for handling, such as an exchange which handles receipt and transmission of data) which handles virtual channels or paths according to Col 1 lines 10-13.

i. The appellant argued that Nagata teaches away from the examiners interpretation by specifically disclosing that the ATM network is made up of virtual paths **or** virtual channels (according to page 7 of the appeal brief). The examiner points to the definition of a virtual path, which states that a virtual path contains virtual circuits (where a virtual circuit is synonymous to a virtual channel), therefore when a virtual path is present, so too is a virtual channel/circuit. Furthermore, a channel that connects two points, is equivalent to the path between those two points, thus given the broadest allowable interpretation, a virtual channel and virtual path are not differentiated within the claims (Also, A VP is a bundle of VC links, and all the VC links in the bundle have the same endpoints, so that a VC link is equivalent to a VP connection).

j. The appellant argued with respect to the rejection of claim 13-17 and 19 that Nagata does not disclose a plurality of trunks (according to page 7 of the appeal brief). The appellant argues with respect to the definition given within the written description, however the appellant is reminded that the written description

is not read into a claim, and thus the claims are interpreted as broadly as their terms allow. Furthermore, no functionality of the plurality of trunks is given within the claims. Therefore elements 16 and 53 of fig 14, which are termination points for a connection (similar to the applicants disclosure on page 6 lines 20 21 that states that the trunk is a unit for the termination of the VC), are equivalent to trunks.

k. Claims 14-17 and 19 depend on claim 13, so are therefore addressed above with respect to claim 13.

l. Regarding claim 18, the appellant argued that the cited art does not disclose the control unit being configured to forward loopback control test initiation instructions to the plurality of testing devices. The examiner notes that the written description is not read into a claim, and thus the claims are interpreted as broadly as their terms allow. The examiner notes that no function is claimed with respect to the testing devices, thus the intermediate devices which receive the OAM cell tx requests (fwd loopback control test initiation instructions), are equivalent to testing devices.

m. Regarding claim 2, the appellant argued that the cited art does not disclose the control unit being further configured to carry out a switching operation of a route from at least one of the virtual path handlers to at least one of the trunks for fault avoidance. The examiner cited col 4 lines 30-40 of HSING, where fig 1 of HSING shows the destination equivalent to a trunk as mapped to the trunk of Nagata, and a plurality of ATM devices equivalent to the VPHs of

Nagata, where the cited portion supports these switches creating virtual paths using the VP and VC identifiers. Furthermore, HSING discloses rerouting (switching operation of a route) around one of the failed nodes (nodes are mapped to VPHs) to the destination (trunk).

n. Regarding claim 2, that appellant argued that the examiner has not established a prima case of obviousness. The examiner maintains that it would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the ATM exchanges of Nagata with the method of rerouting around faulty exchanges/nodes as disclosed by Hsing, so as to allow restoring of connections in an ATM network (fault tolerance).

o. Regarding claim 20, that appellant argued that the cited art does not specifically disclose the plurality of path handlers, the plurality of channels handlers, and the plurality of trunks being contained in a single switching apparatus. The examiner respectfully disagrees, as HISCOCK is introduced to show that the combination of devices, such as the switches within fig 14 of Nagata are combined into one single apparatus such as shown in element 20 of fig 1. The appellant also argues that HISCOCK doe snot disclose paths, channels or trunks. The examiner notes that paths, channels and trunks are disclose within the Nagata, and HISCOCK is only introduced to show a single switching apparatus. Furthermore, the examiner notes that even without the combination of HISCOCK, fig 14 is interpreted as a whole as one single switching apparatus, and HISCOCK is only introduced as backup support

p. The appellant argues that the examiner has not established a prima facie case of obviousness with respect to claim 20. The examiner disagrees with the appellants arguments, as the modification of Nagata results in the exchanges being contained within a logical switching set used to forward data, the modification enhancing fault tolerance.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Christopher P Grey/

Examiner, Art Unit 2416

Conferees:

/Aung S. Moe/

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Supervisory Patent Examiner, Art Unit 2416